

CLAIMS

What is claimed is:

1. A multi-functional device comprising:

5 a plurality of analog blocks coupled in a single integrated circuit;

said plurality of analog blocks comprising a first set of analog blocks that
can be selectively and electrically coupled to and decoupled from another
analog block;

10 wherein said analog blocks are selectively and electrically coupled to
implement a particular analog function, wherein different analog functions are
implemented by electrically coupling different combinations of said analog
blocks.

15 2. The multi-functional device of Claim 1 wherein said first set of
analog blocks comprises switched capacitor blocks.

20 3. The multi-functional device of Claim 1 wherein said first set of
analog blocks comprises a first type and a second type, wherein said first type is
adapted to receive a first set of inputs and wherein said second type is adapted
to receive a second set of inputs different from said first set of inputs.

4. The multi-functional device of Claim 1 wherein said plurality of analog blocks also comprises a second set of analog blocks, wherein said second set of analog blocks comprises continuous time blocks.

5 5. The multi-functional device of Claim 1 wherein said plurality of analog blocks is arranged in an array having multiple columns and multiple rows.

6. The multi-functional device of Claim 5 wherein said array
10 comprises a first row of continuous time blocks and multiple rows of switched capacitor blocks, wherein said first row is disposed between a row of switched capacitor blocks and an edge of said array.

7. The multi-functional device of Claim 5 wherein each analog block
15 in a column is coupled to a respective digital bus.

8. The multi-functional device of Claim 1 wherein an analog block
comprises a plurality of analog elements having changeable characteristics,
wherein a characteristic of an analog element is specified according to said
20 particular analog function.

9. A method for implementing multiple functions in a device, said method comprising the steps of:

a) selecting a first analog block from a plurality of analog blocks coupled in a single integrated circuit, wherein said first analog block can be electrically
5 coupled to and decoupled from another analog block; and

b) coupling electrically said first analog block to another analog block to implement a first analog function;

wherein different analog functions are implemented by selectively and electrically coupling different combinations of analog blocks.

10. The method of Claim 9 wherein said first analog block is a switched capacitor block.

11. The method of Claim 9 wherein said plurality of analog blocks
15 comprises a plurality of switched capacitor blocks of a first type and a second type, wherein said first type is adapted to receive a first set of inputs and wherein said second type is adapted to receive a second set of inputs different from said first set.

20 12. The method of Claim 9 wherein said plurality of analog blocks comprises a plurality of continuous time blocks.

13. The method of Claim 9 wherein said analog blocks are arranged in an array having multiple columns and multiple rows.

14. The method of Claim 13 wherein said array comprises a first row of continuous time blocks and multiple rows of switched capacitor blocks, wherein said first row is disposed between a row of switched capacitor blocks and an edge of said array.

15. The method of Claim 13 wherein each analog block in a column is coupled to a respective digital bus.

16. The method of Claim 9 comprising the step of:
c) changing a characteristic of an analog element of said first analog block, wherein said characteristic is specified according to which analog function is being implemented.

17. An array of analog blocks comprising:
a first plurality of analog blocks comprising continuous time blocks; and
a second plurality of analog blocks comprising switched capacitor blocks,
said second plurality of analog blocks coupled to said first plurality of analog blocks, wherein a switched capacitor block can be selectively and electrically coupled to and decoupled from another analog block;

wherein said first plurality and said second plurality of analog blocks are selectively and electrically coupled in different combinations to implement different analog functions.

5 18. The array of analog blocks of Claim 17 wherein said switched capacitor blocks comprise a first type and a second type, wherein said first type is adapted to receive a first set of inputs and wherein said second type is adapted to receive a second set of inputs different from said first set.

10 19. The array of analog blocks of Claim 17 wherein said array comprises a first row of continuous time blocks and multiple rows of switched capacitor blocks, wherein said first row is disposed between a row of switched capacitor blocks and an edge of said array.

15 20. The array of analog blocks of Claim 19 wherein each analog block in a column is coupled to a respective digital bus.

20 21. The array of analog blocks of Claim 17 wherein an analog function is an amplifier function, a digital-to-analog converter function, an analog-to-digital converter function, an analog driver function, a low band pass filter function, or a high band pass filter function.

22. The array of analog blocks of Claim 17 wherein an analog block comprises a plurality of analog elements having changeable characteristics, wherein a characteristic of an analog element is specified according to said particular analog function.

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